10-20 Watts

JTA Series

- 4:1 Input Range
- -40 ˚C to +100 ˚C Operating Temperature
- Single & Dual Outputs
- Overvoltage & Overcurrent Protection
- UL Safety Approvals
- Remote On/Off
- 1500 VDC Isolation

Specification

Input

Input Voltage Range	• 9-36 VDC 18-75 VDC
Input Current	• JTA10: 1.65 A max at 9 VDC input JTA15: 2.20 A max at 9 VDC input JTA20: 2.90 A max at 9 VDC input

Output

Output Voltage	• See table
Output Voltage Trim	• ±10% (15 & 20 W models only)
Voltage Balance	• ±1% max dual models, 100% load
Minimum Load	• No minimum load required for single output models, 10% required for dual output models
Line Regulation	• ±1% max
Load Regulation	• Single output models: ±1% max Dual output models: ±2% max for a 10-100% load change
Setpoint Accuracy	• ±2%
Ripple & Noise	• Single output models: 50 mV pk-pk Dual output models: 75 mV pk-pk typical at 20 MHz BW
Transient Response	• 4% max deviation, recovery to within 1% in <500 µs for a 25% load change
Temperature Coefficient	• 0.02%/°C
Overvoltage Protection	• See table
Overcurrent Protection	• Continuous with auto recovery
Remote On/Off	• On = Logic High or Open Off = Logic Low or <1.8 V (15 & 20 W models only)

General

Efficiency	• See table
Isolation	• 1500 VDC Input to Output
MTBF	• 1,000 kHrs min per MIL-HDBK-217F

Environmental

Operating Temperature	• -40 °C to +100 °C, see derating curve
Case Temperature	• +100 °C max
Cooling	• Natural convection
Operating Humidity	• 5-95% RH, non-condensing
Storage Temperature	• -55 °C to +105 °C

EMC & Safety

Emissions	• EN55022, level A conducted (below -25 °C) level B conducted (-25 °C to +100 °C) See note 1. EN55022, level A radiated
ESD Immunity	• EN61000-4-2, level 2 Perf Criteria A
Radiated Immunity	• EN61000-4-3 3 V/rms, Perf Criteria A
Conducted Immunity	• EN61000-4-6 3 V/m, Perf Criteria A
Safety Approvals	• UL60950-1

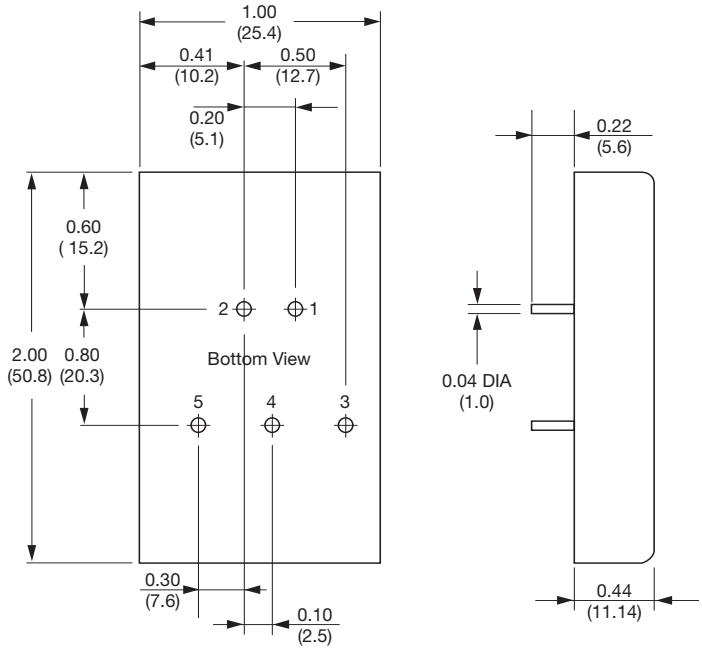
Models and Ratings

Input Voltage	Maximum Power	Overvoltage Protection	Output V1		Output V2		Efficiency	Model Number
			V Nom	I Max	V Nom	I Max		
9-36 VDC	6.6 W	3.9 V	3.3 V	2.00 A			77%	JTA1024S3V3
	10.0 W	6.8 V	5.0 V	2.00 A			79%	JTA1024S05
	10.0 W	15.0 V	12.0 V	0.83 A			81%	JTA1024S12
	10.0 W	18.0 V	15.0 V	0.67 A			81%	JTA1024S15
	10.0 W	6.8 V	5.0 V	1.00 A	-5.0 V	1.00 A	80%	JTA1024D01
	10.0 W	15.0 V	12.0 V	0.42 A	-12.0 V	0.42 A	80%	JTA1024D02
	10.0 W	18.0 V	15.0 V	0.33 A	-15.0 V	0.33 A	80%	JTA1024D03
18-75 VDC	6.6 W	3.9 V	3.3 V	2.00 A			78%	JTA1048S3V3
	10.0 W	6.8 V	5.0 V	2.00 A			80%	JTA1048S05
	10.0 W	15.0 V	12.0 V	0.83 A			82%	JTA1048S12
	10.0 W	18.0 V	15.0 V	0.67 A			82%	JTA1048S15
	10.0 W	6.8 V	5.0 V	1.00 A	-5.0 V	1.00 A	81%	JTA1048D01
	10.0 W	15.0 V	12.0 V	0.42 A	-12.0 V	0.42 A	83%	JTA1048D02
	10.0 W	18.0 V	15.0 V	0.33 A	-15.0 V	0.33 A	83%	JTA1048D03

Notes

1. For EN55022 Level B performance below -25 ºC, a 100 µF (24 VDC input), 22 µF (48 VDC input) electrolytic capacitor is required across the input of the converter.

Mechanical Details

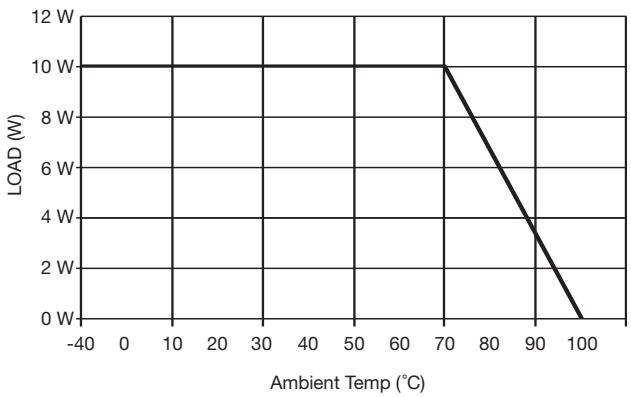


PIN CONNECTIONS		
Pin	Single Output	Dual Output
1	+Input	+Input
2	-Input	-Input
3	+Output	+Output
4	No pin	Common
5	-Output	-Output

All dimensions are in inches (mm)
Weight: 0.06 lb (28 g) approx.
Packaging Style: Copper case with non-conducting base

Application Notes

Derating Curve



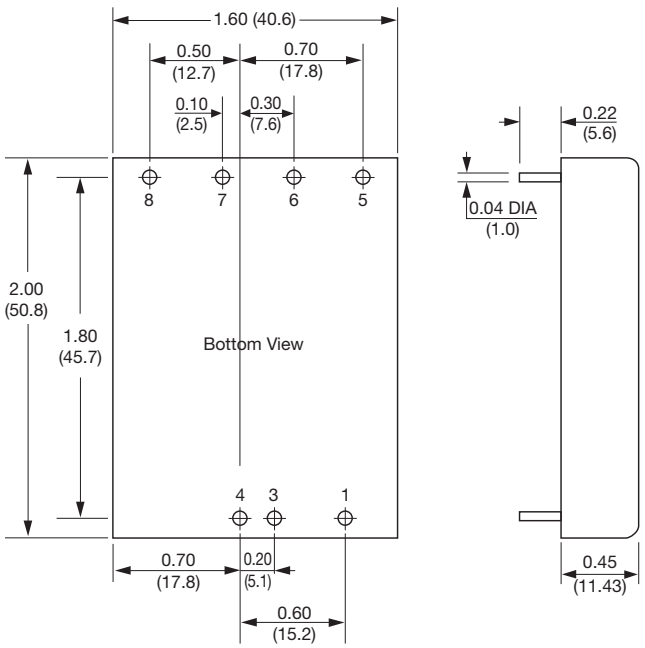
Models and Ratings

Input Voltage	Maximum Power	Overvoltage Protection	Output V1		Output V2		Efficiency	Model Number
			V Nom	I Max	V Nom	I Max		
9-36 VDC	10 W	3.9 V	3.3 V	3.000 A			76%	JTA1524S3V3
	15 W	6.8 V	5.0 V	3.000 A			80%	JTA1524S05
	15 W	15.0 V	12.0 V	1.250 A			82%	JTA1524S12
	15 W	18.0 V	15.0 V	1.000 A			82%	JTA1524S15
	15 W	6.8 V	5.0 V	1.500 A	-5.0 V	1.500 A	80%	JTA1524D01
	15 W	15.0 V	12.0 V	0.625 A	-12.0 V	0.625 A	82%	JTA1524D02
	15 W	18.0 V	15.0 V	0.500 A	-15.0 V	0.500 A	82%	JTA1524D03
18-75 VDC	10 W	3.9 V	3.3 V	3.000 A			76%	JTA1548S3V3
	15 W	6.8 V	5.0 V	3.000 A			80%	JTA1548S05
	15 W	15.0 V	12.0 V	1.250 A			82%	JTA1548S12
	15 W	18.0 V	15.0 V	1.000 A			82%	JTA1548S15
	15 W	6.8 V	5.0 V	1.500 A	-5.0 V	1.500 A	80%	JTA1548D01
	15 W	15.0 V	12.0 V	0.625 A	-12.0 V	0.625 A	82%	JTA1548D02
	15 W	18.0 V	15.0 V	0.500 A	-15.0 V	0.500 A	82%	JTA1548D03

Notes

1. For EN55022 Level B performance below -25 ºC, a 220 µF (24 VDC input), 47 µF (48 VDC input) electrolytic capacitor is required across the input of the converter.

Mechanical Details

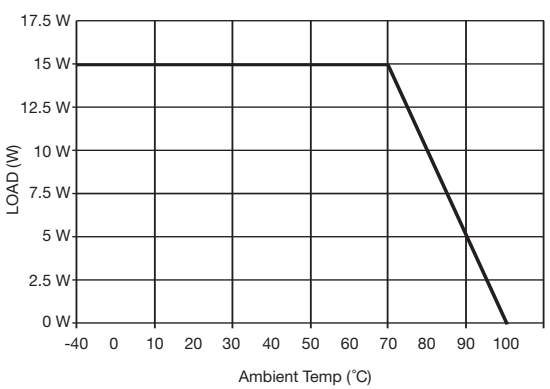


PIN CONNECTIONS		
Pin	Single Output	Dual Output
1	On/Off control	On/Off control
3	-Vin	-Vin
4	+Vin	+Vin
5	Trim	Trim
6	-Vout	-Vout
7	+Vout	Common
8	No pin	+Vout

All dimensions are in inches (mm)
Weight: 0.11 lb (50 g) approx.
Packaging Style: Copper case with non-conducting base

Application Notes

Derating Curve



Output Trim

OUTPUT TRIM		
Output Voltage	R Trim Down (kΩ)	R Trim Up (kΩ)
3.3 V	(6.180 - (12.10 x ΔVo))/ΔVo	(3.484 - (7.511 x ΔVo))/ΔVo
5.0 V	(5.788 - (10.57 x ΔVo))/ΔVo	(5.788 - (8.250 x ΔVo))/ΔVo
12.0 V	(86.496 - (60.10 x ΔVo))/ΔVo	(19.763 - (14.366 x ΔVo))/ΔVo
15.0 V	(150.000 - (87.00 x ΔVo))/ΔVo	(25.585 - (14.516 x ΔVo))/ΔVo
±5.0 V	(430.000 - (120.00 x ΔVo))/ΔVo	(42.141 - (13.793 x ΔVo))/ΔVo
±12.0 V	(743.000 - (177.00 x ΔVo))/ΔVo	(56.644 - (17.647 x ΔVo))/ΔVo
±15.0 V	(68.296 - (48.10 x ΔVo))/ΔVo	(20.657 - (19.500 x ΔVo))/ΔVo

Note:
1. ΔVo is the change in the trimmed output voltage from the nominal output voltage.
   Example: JTA1524S05 trimmed to 5.3 V

   ΔVo = 5.0 - 5.3 = 0.3 VDC
   The equation is (5.788 - (8.25 x ΔVo))/ΔVo
   The value of resistor = (5.788 - (8.25 x 0.3))/0.3 = 11.04 KΩ
   Connect the resistor between TRIM pin and -Vo pin.

Models and Ratings

Input Voltage	Maximum Power	Overvoltage Protection	Output V1		Output V2		Efficiency	Model Number
			V Nom	I Max	V Nom	I Max		
9-36 VDC	13.2 W	3.9 V	3.3 V	4.00 A			78%	JTA2024S3V3
	20.0 W	6.8 V	5.0 V	4.00 A			81%	JTA2024S05
	20.0 W	15.0 V	12.0 V	1.67 A			83%	JTA2024S12
	20.0 W	18.0 V	15.0 V	1.33 A			83%	JTA2024S15
	20.0 W	6.8 V	5.0 V	2.00 A	-5.0 V	2.00 A	83%	JTA2024D01
	20.0 W	15.0 V	12.0 V	0.83 A	-12.0 V	0.83 A	83%	JTA2024D02
	20.0 W	18.0 V	15.0 V	0.67 A	-15.0 V	0.67 A	83%	JTA2024D03
18-75 VDC	13.2 W	3.9 V	3.3 V	4.00 A			78%	JTA2048S3V3
	20.0 W	6.8 V	5.0 V	4.00 A			82%	JTA2048S05
	20.0 W	15.0 V	12.0 V	1.67 A			84%	JTA2048S12
	20.0 W	18.0 V	15.0 V	1.33 A			84%	JTA2048S15
	20.0 W	6.8 V	5.0 V	2.00 A	-5.0 V	2.00 A	84%	JTA2048D01
	20.0 W	15.0 V	12.0 V	0.83 A	-12.0 V	0.83 A	84%	JTA2048D02
	20.0 W	18.0 V	15.0 V	0.67 A	-15.0 V	0.67 A	84%	JTA2048D03

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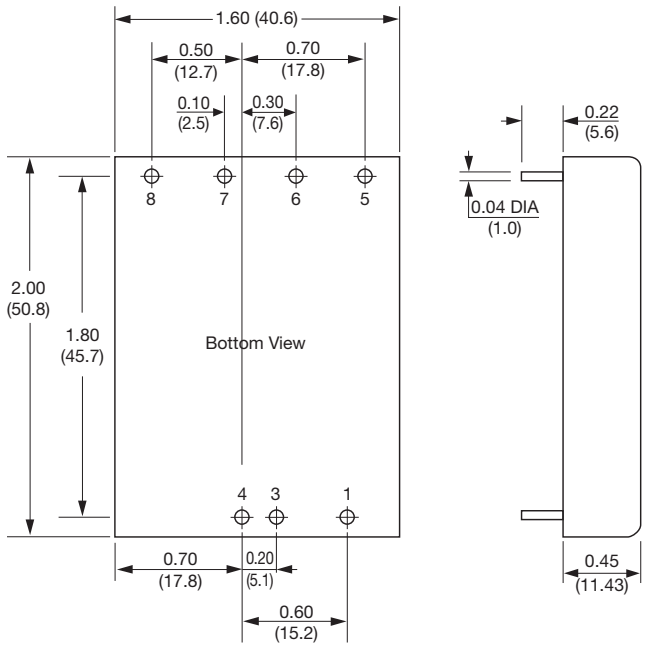

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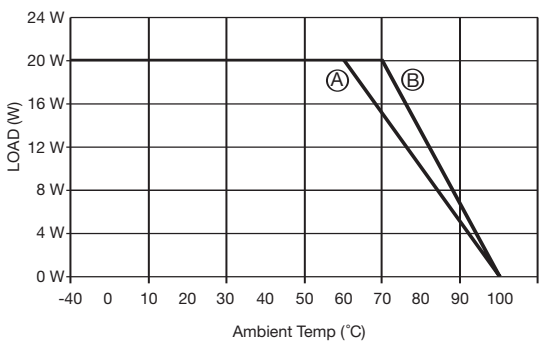
Application Notes

Derating Curve



Curve A: Convection cooling
100% load at +60 ˚C to 0% load at +100 ˚C
Curve B: 150 LFM airflow
100% load at +70 ˚C to 0% load at +100 ˚C

Output Trim

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Model Number	R Trim Down (kΩ)	R Trim Up (kΩ)
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5.0 V	(5.788 - (10.57 x ΔVo))/ΔVo	(5.788 - (8.250 x ΔVo))/ΔVo
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The equation is (5.788 - (8.25 x ΔVo))/ΔVo
The value of resistor = (5.788 - (8.25 x 0.3))/0.3 = 11.04 KΩ
Connect the resistor between TRIM pin and -Vo pin.